WHAT IS CLAIMED IS:

1.   A method for simulating film grain, comprising the steps of:
      receiving an encoded image
      receiving film grain characterization information indicative of grain in a film on which
the encoded image was originally recorded,
      decoding at least the encoded image;
      simulating a pattern of film grain in accordance with the received film grain
characterization information; and
      blending the simulated film grain pattern with the decoded image.

2.   The method according to claim 1 further comprising the steps of:
      receiving the encoded image in an ITU-T H.264 video coding format; and
      receiving the film grain characterization information as a Supplemental Enhancement
Information (SEI) Message.

3.   The method according to claim 1 wherein the step of receiving the film grain
characterization information includes the step of receiving an identifier of which type of film
stock was originally used to record the encoded image.

4.   The method according to claim 1 wherein the step of receiving the film grain
characterization information includes the step of receiving an identifier of a model that best
approximates the film grain in the film stock originally used to record the encoded image.

5.   The method according to claim 1 wherein the step of receiving the film grain
characterization information includes the step of receiving information indicative of film grain
size, intensity, spatial correlation, and color correlation.

6.   The method according to claim 1 further including the step of separately
simulating the pattern of film grain for separate groups of frames in the encoded video.

1 7.   A method for simulating film grain, comprising the steps of:
2 encoding an image originally recorded on film;
3 identifying the film grain present in the input image; and
4 establishing film grain characterization information for the film in accordance with a
5 predefined modeling process so that upon decoding the encoding image, a pattern of film grain
6 can be simulated in accordance with the film grain characterization information and blended with
7 the decoded image.

1 8.   The method according to claim 7 further comprising the steps of:
2 encoding the image in an ITU-T H.264 video coding format; and
3 formatting the film grain characterization information as a Supplemental Enhancement
4 Information (SEI) Message.

1 9.   The method according to claim 7 wherein the step of establishing the film grain
2 characterization information includes the step of identifying which type of type of film stock
3 originally recorded the encoded image.

1 10.   The method according to claim 7 wherein the step of establishing the film grain
2 characterization information includes the step of identifying a model that best provides an
3 indication of film grain in the film originally recorded the image.

1 11.   The method according to claim 10 wherein step of identifying the model includes
2 choosing among a best model among a plurality of film grain models.

1 12.   The method according to claim 7 wherein the step of establishing the film grain
2 characterization information includes the step of establishing film grain size, intensity, spatial
3 correlation, and color correlation.

1 13.   The method according to claim 7 further including the step of removing film grain
2 from the image prior to encoding.

1 14.   Apparatus for simulating film grain in an image, comprising of:

2   a decoder for receiving an encoded image and for receiving film grain characterization

3   information indicative of grain in a film on which the encoded image was originally recorded and

4   for decoding the image; and

5   a film grain restoration processor for simulating a pattern of film grain in accordance with

6   the received film grain parameter information; and for blending the simulated film grain pattern

7   to the decoded image.

1   15.   The apparatus according to claim 14 wherein the decoder receives the film grain

2   characterization information as parallel information to the encoded image.

1   16   The apparatus according to claim 14 wherein the decoder receives the encoded

2   image in an ITU-T H.264 video coding format; and wherein the decoder receives the film grain

3   characterization information as a Supplemental Enhancement Information (SEI) Message.

1   17.   The apparatus according to claim 14 wherein the film grain characterization

2   information includes an identifier of which type of film stock originally recorded the encoded

3   image to provide an indication of film grain.

1   18.   The apparatus according to claim 14 wherein the film grain characterization

2   information includes an identifier of a model that best provides an indication of film grain in the

3   film originally recorded the encoded image to provide an indication of film grain.

1   19.   The apparatus according to claim 18 wherein the model identifier identifies the

2   best model among a plurality of film grain models.

1   20.   The apparatus according to claim 14 wherein the film grain characterization

2   information includes information indicative of film grain size, intensity, spatial correlation, and

3   color correlation.

1   21.   The apparatus according to claim 14 wherein the film grain restoration process

2   separately simulates the pattern of film grain for separate groups of frames in the encoded video.